

FALL 88

AMATEUR TELEVISION QUARTERLY

VOL. 1 #2





1.3 GHz TV

Although traditionally thought of as a band for more advanced work, 1.3GHz should now have a number of ATV repeaters operating within its allocation. Therefore this short chapter is included as an introduction to the band and to give constructional details of a simple receive converter to assist those who perhaps are drawn onto the band by the presence of a nearby repeater.

THE BAND

First, let me say that contrary to popular belief 1.3GHz operation should not generally be regarded as a purely local band. It does not necessarily have a much reduced range when compared with 70cm transmissions. Having said that, I realise of course that this popular misconception must have roots somewhere. The probable answer is that, given a poor path between two stations, the lower frequency band will indeed out-perform the higher. The reason for this is that as frequency increases, obstructions along a path will increase the attenuation of radio waves. Therefore for 1.3GHz to be effectively used over long distances, it is important that stations are located on fairly high ground enabling a wide area to be 'seen' by the aerial. This is not to say that all successful contacts are made over line-of-sight paths, far from it, but it does help. However, even if you are in a rather poor location you may be able to work through a local repeater, and you may be surprised at just how far your signal can reach - especially during an opening which tends to be more intense on this band.

THE BAND PLAN

As stated in the introduction to this booklet, a bandplan has been drawn up to guide users in the use of the band. Before ordering crystals though, do try and check that the frequencies are still current (especially those of the repeaters) since at the time of writing the plan had not received official approval. You will see from the plan that two simplex channels exist between 1240 and 1260 MHz. It is however perfectly acceptable for stations to use either of the repeater channels for simplex working, provided of course that you are not within range of a TV repeater on the same channel.

AMATEUR TELEVISION HANDBOOKS

THESE TWO HANDBOOKS HAVE BEEN SPECIALLY PRODUCED BY THE BATC TO OFFER A COMPREHENSIVE RANGE OF CONSTRUCTIONAL PROJECTS TO AID IN THE ESTABLISHMENT OF AN AMATEUR TV STATION.

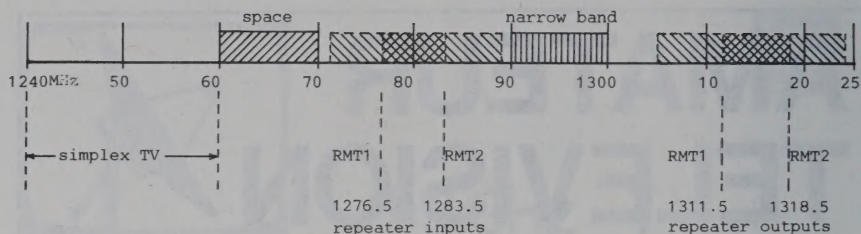
PRINTED CIRCUIT BOARDS ARE AVAILABLE FOR MOST OF THE DESIGNS AND SOME OF THE HARD-TO-GET COMPONENTS SUCH AS PROGRAMMED PROMS ARE ALSO AVAILABLE.

HANDBOOK 1

TV Receiver
70cm TV tuner
Electronic character generator
Character generator memory
Colour electronic test card.
TV camera
Video switching unit
PAL colour coder

HANDBOOK 2

Slow-scan TV
ASCII keyboard
Character colouriser
Sync pulse generator
Colour vision switcher
Effects unit
Colour synthesizer
FM-TV



PROVISIONAL 1.3GHz BANDPLAN INCORPORATING ATV REPEATER AND SIMPLEX FREQ'S

MODES OF EMISSION

Much research has been carried out in recent years on whether to adopt the FM-TV standard for this band and above or whether to stick to the conventional AM mode. Tests and experiments have shown that there is a definite advantage in using FM, (not the least of which is with the equipment) and experience of direct comparisons between the two modes over an extended period has endorsed this view. Therefore the phase one repeater applications all request the use of FM, although at present two wish to retain a partial AM option as well.

REPEATERS

At the time of writing (February 1983) the repeater licences have not yet been received. However the proposals for phase one are as follows:-

GB3UT	BATH	RMT1
GB3GV	LEICESTER	RMT1
GB3TV	LUTON	RMT2
GB3VR	WORTHING	RMT2
GB3UD	STOKE-ON-TRENT	RMT2

It is proposed that, initially, the RMT 1 users will have their output in AM whilst RMT 2 users will be exclusively on FM. Access to a TV repeater will be by a carrier on the input frequency which contains a 625-line television signal.

CONTINENTALS

Virtually all French TV amateurs transmit and receive on 1255 MHz. Much of the near Continent also operate around this frequency therefore it would seem appropriate to concentrate UK simplex TV working around this part of the band. For this reason the two simplex channels are allocated at the lower end of the band. FM is the mode most used on the Continent.

A 1.3GHz TV converter

This unit will convert amateur television signals in the 1.3GHz band to a frequency within the broadcast UHF TV spectrum, thus permitting any domestic 625-line TV set to be used for amateur TV reception without modification. The converter is connected directly to the TV aerial socket.

Design and construction techniques have been purposely kept simple in order that the converter may be built and aligned without the need for a special printed-circuit board and elaborate test equipment. Because of the simplicity, exceptional performance (when compared with professionally engineered units) should not be expected although performance is adequate for most purposes.

SPECIFICATION

Input frequency:	1240 - 1330MHz (adjustable)
Output frequency:	Adjustable over UHF bands 4 and 5
Overall gain:	25dB (typical)
Noise figure:	around 4dB (optimised)
Bandwidth:	+20 -40MHz from centre frequency @-3dB (typical)
Power requirements:	11 - 14v DC (12v nominal)
Overall size:	100mm x 65mm

CIRCUIT DESCRIPTION

A BFR91 was chosen for the first signal amplifier which is adjusted for best noise performance. The second amplifier employs a BFR90 which is set for maximum gain. These transistors, although rather dated by today's standards, have proved among the easiest to use in this design, and are still readily available (Modular Electronics, Ambit International etc.) All the gain for the converter is obtained from the two signal frequency amplifiers.

The mixer Tr3 is, for simplicity, a single-ended transistor type which is biased for unity gain. The IF is selected by the collector tuned circuit which will tune between 450 and 800MHz.

The local oscillator Tr4 uses a FET and is tunable over a wide range enabling virtually any IF in the UHF TV band to be used. The oscillator was found to be quite clean and to be sufficiently stable. It is quite important to use the specified FET, other types may not be very satisfactory.

COMPONENTS

All components should be of good quality. Fixed capacitors are sub-miniature ceramic. Trimmer capacitors may be good quality plastic PTFE types. DAU and Mullard makes are good. Do not try to use some of the cheaper types - they may not be PTFE.

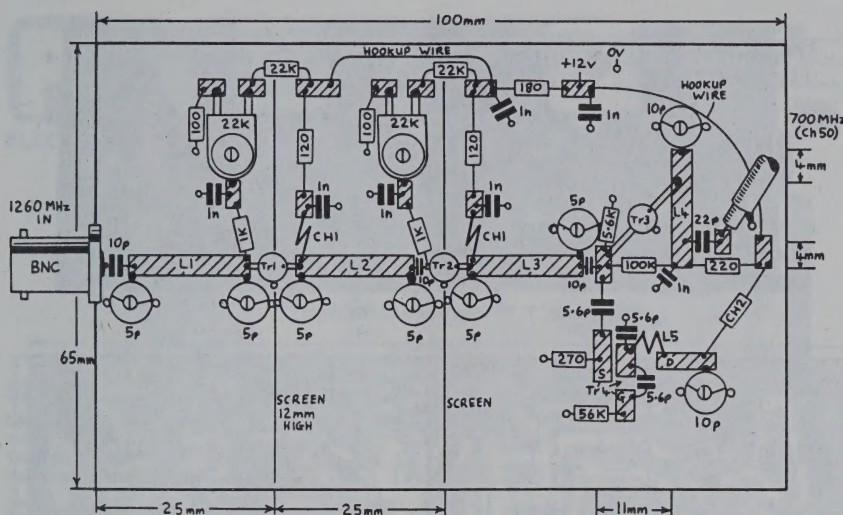


Fig.2

LAYOUT DIAGRAM, 24cm CONVERTER.

CONSTRUCTION

Although printed circuit techniques are used in order to ensure repeatability, it is not necessary to etch and drill conventional printed circuit boards.

Take a piece of good quality, single sided fibre glass board 100mm x 65mm and place it copper side uppermost. Cut out the pieces indicated by the shaded areas in Fig.2 from another piece of similar material using a small saw. Glue these pieces, copper side up, to the main board so that the copper is insulated from the earth plane. Position the pads as shown in fig.2. The small pads should be about 3mm wide and no longer than that required. 12mm high screens should be soldered to the ground plane in the positions shown. Thin gauge copper, brass or tin plate may be used for these.

It is strongly recommended that the converter be installed in a screened box before alignment. The box may be made from single sided PC board material. If possible the converter should be soldered around the edges to the box. If this is not possible, the enclosure should be large enough to allow at least a quarter of an inch between the edge of the board and the inside walls of the box. Failure to do this may result in a variation in tuning when the box is handled. Should neither of these techniques be possible and a small gap is unavoidable, the board should be bonded to the case in several places using either solder tags or copper fingers soldered to the board and bent up to press against the inside of the case.

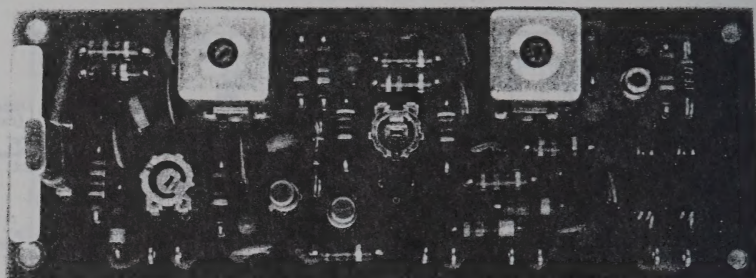


Fig. 7: Prototype module DJ 4 LB 001

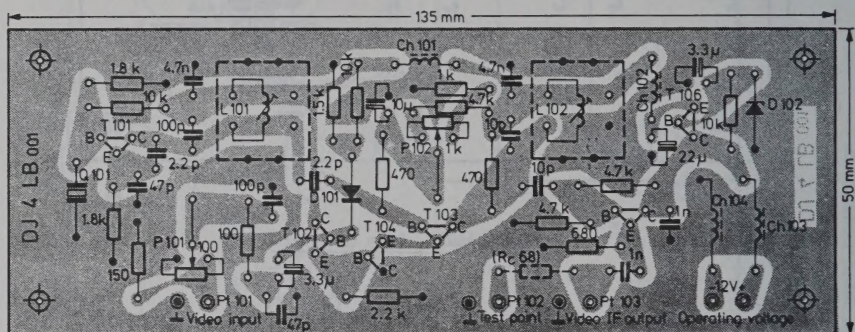


Fig. 8: PC-board and component locations of DJ 4 LB 001

TEKO-box size 4B. It has been necessary to use the higher boxes due to the height of the screening cans. The PC-board can be mounted with the aid of screws using spacing bushings or nuts in order to obtain a spacing of approx. 5 mm to the base of the box. As can be seen from the photograph of the prototype given in Figure 7, all connection pins are located on the long side of the printed circuit board. After installation into the TEKO-box, sufficient room is provided on this side for plug-in connections and/or coaxial connectors and feedthrough capacitors. The PC-board and the component locations are shown in Figure 8. Sufficient room is given on the PC-board so that even older, larger capacitors and resistors can be used.

2.2.1. SPECIAL COMPONENTS

T 101: BF 224. BF 173

T 102: BC 109, BC 184 or similar

T 103: BF 224. BF 173

T 104: BC 178 VI, BC 213 (PNP)

T 105: BF 224, BF 173

T 106: BC 108 or similar

D 101: AA 138, AA 112, AA 116
germanium diode

germanium diode

D 102: BZY 85/C9V1 (9.1 V
zener diode)

zener diode)

L 101: 5.75 turns of 0.8 mm dia. (20 AWG) silver-plated copper wire wound on a 5 mm dia. coilformer, coil length 8 mm, facing the collector side of the PC-board. Special coil kit.



P.C. ELECTRONICS 2522 PAXSON LANE ARCADIA CA 91006-8537 USA
TOM (W6ORG) & MARYANN (WB6YSS) O'HARA (818) 447-4565



\$299*

Designed and built in the USA
Value plus quality from over 25 years in ATV

TC70-1 TRANSCEIVER

AMATEUR TELEVISION

SMILE YOU'RE ON TV!



WITH OUR TC70-1 ALL-IN-ONE BOX ATV TRANSCEIVER, YOU TOO CAN EASILY TRANSMIT LIVE ACTION COLOR VIDEO & SOUND JUST LIKE BROADCAST TV TO OTHER AMATEURS, SO SMILE FOR THE CAMERA!

TC70-1 SPECIAL FEATURES:

- * Sensitive UHF GaAsfet tuneable 420-450 MHz downconverter
- * Two frequency >1 watt p.e.p. transmitter. 1 crystal included
- * Crystal locked 4.5 mHz broadcast standard sound subcarrier
- * 10 pin VHS color camera and RCA phono jack video inputs
- * PTL (push to look-same as push to talk for video) T/R switching
- * Transmit video monitor outputs to camera and phono jack
- * Small attractive shielded cabinet - 7 x 7 x 2.5"
- * Requires 13.8 Vdc @ 500 ma. + color camera current

Just plug in your camera, VCR, camcorder, etc. composite video and audio (10 pin jack on front or phono jacks on back), 70cm antenna, 12 to 14 Vdc, and you are ready to transmit live action color or black and white pictures and sound to other amateurs. Sensitive downconverter tunes the whole 420-450 mHz band down to input to your TV set on channel 3. Specify 439.25, 434.0, or 426.25 mHz transmit frequency. Extra transmit crystal add \$15.

*Transmitting equipment sold only to licensed radio amateurs verified in the Callbook for legal purposes. If newly licensed or upgraded, send copy of license. Receiving downconv. available to all starting @\$49 (TVC-2G).

WHAT ELSE DOES IT TAKE TO GET ON ATV?

Any Tech class or higher amateur can get on 70cm, novices now on 23cm ATV. Any video camera, camcorder, VCR or computer with a composite video output can be plugged into the front panel 10 pin VHS jack or rear panel phono jacks for both audio & video.

DX with TC70-1s and KLM 440-27 antennas line of sight and snow free is about 22 miles, 7 miles with the 440-6X normally used for portable uses like parades, races, search & rescue, damage assessment, etc. For greater DX or punching thru obstacles add either the ATV compatible 15 or 50 watt amplifiers listed below.

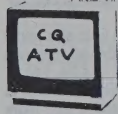
The TC70-1 has full bandwidth for color & sound, like broadcast. You can show the shack, home video tapes, computer programs, repeat SSTV, weather radar, or even Space Shuttle video if you have a home satellite receiver. See the *ARRL Handbook* chap. 20 & 71 for more info & *Repeater Directory* for local ATV repeaters.

**PURCHASE AN AMP WITH THE TC70-1 & SAVE!
50 WATT WITH D24N-ATV....\$499**

*All prices include UPS surface shipping in cont. USA

COMPLETE 70CM ATV STATION

9/88



YOUR TV SET



YOUR HOME TV CAMERA

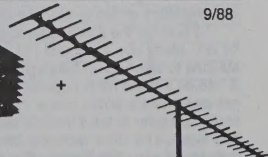


**TC70-1...\$299
ATV Transceiver
>1 WATT P.E.P.**

13.8Vdc
Pwr. Sup.



Mirage D15N....\$149
(optional) 15 watts RF out
RF Concepts RF4-32...\$155
(opt) typ 15W pep. GaAsfet preamp.
Mirage D24N....\$209
(optional) 50 watts RF out
NEW DIRECT 780W...\$09

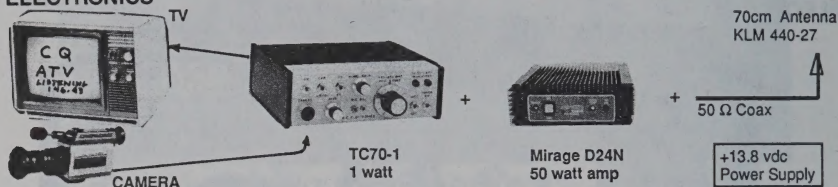


KLM 440-27 14dBd \$107
KLM 440-10X 11dBd \$65
KLM 440-6X 8.9dBd \$51



P.C. ELECTRONICS 2522 PAXSON LANE ARCADIA CA 91006-8537 USA
TOM (W6ORG) & MARYANN (WB6YSS) O'HARA (818) 447-4565

READY TO GO ATV STATION

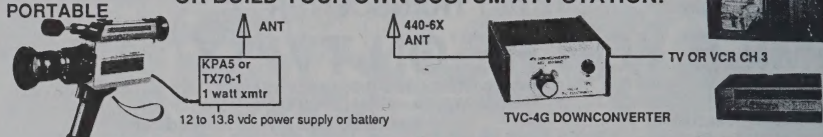


THIS IS THE QUICKEST AND EASIEST WAY TO GET ON ATV AND ENJOY THE FUN!

Connect up your TV set tuned to ch 2,3 or 4 to the TC70-1 TV output for receiving, plug in your camera, VCR, or computer video and audio for transmitting. With 1 watt and KLM 440-27 antennas (assumes 3 db coax loss) at each end the snow free line of sight DX is 22 miles. The smaller 440-6X at one end, usually for portable work, gives half (6 db less gain) the distance. For greater DX or non line of sight conditions (usually over 15 miles) add the Mirage 50 watt amp for up to 154 miles. The TC70-1 and camera can be run off a Radio Shack 22-124 power supply or all units from a regulated 13.8vdc 12 amp power supply.

PORTABLE

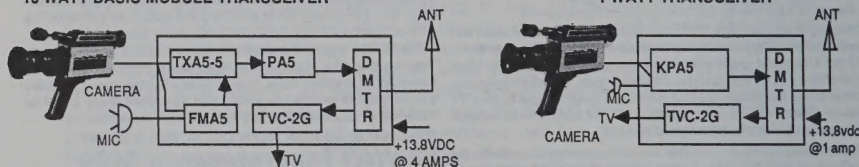
OR BUILD YOUR OWN CUSTOM ATV STATION:



Run portable ATV like you would a HT, but when back at the base station or mobile, you could plug it into the 50 watt amp for greater DX. Truly the most versatile for cordless home video taping, public service work, or general ATV contacts. Snow free portable line of sight DX with a ground plane on the KPA5 and an Isopole omni at the receive end is 2.5 miles, 11 with a 440-6X antenna. Connect the output of a TC70-1, TVC-4G, or TVCX-70 downconverter to your TV set or VCR tuned to channel 2, 3 or 4, which ever is open in your area, to receive. It's easy!

10 WATT BASIC MODULE TRANSCIVER

1 WATT TRANSCIVER



Build your own ATV transceiver using the standard 10 watt set of modules as described in ch 20 of the 1987 ARRL Handbook, and if higher power is desired, add the 100 watt Mirage D1010N-ATV. A small 1 watt transceiver can also be built up and amplifiers added to run 50 watts. For more info on video see chapt 7 in the 1987 ARRL Handbook.

To find out the ATV frequencies in your area check the ARRL Repeater Directory, or call us to find out who else might be on. Many use a 2 meter FM simplex calling frequency to not only initiate the ATV contacts but to enable all receiving stations to talk back in full duplex to the video transmitting station who is talking on the sound subcarrier. 144.34, 144.91 & 146.43 are the most popular, check to see what is used in your area. With an omni on 2 meters you should be able to get any ATVers within range that would take beams on 70cm. The 2 meter channel makes ATV interactive with more stations, easier to tell if there is activity, better for talking in beam headings, fine adjustments to video level, camera angle and focus, and other technical information. You will find that putting most of your time and money into a good antenna system will pay off the most. Since trees and other foliage attenuate 70cm RF greatly, the antenna must be up as high as possible. The RF horizon for a 50ft tower is only 10 miles. Use good 50 Ω tight braid coax, weather proof and take great care in putting together the connectors.



P.C. ELECTRONICS 2522 S. PAXSON LN. ARCADIA CA 91006 (818) 447-4565
TOM W6ORG MARYANN WB6YSS

ELECTRONICS

ORDERING INFORMATION

P.C. ELECTRONICS manufactures and supplies amateur television equipment for TECHNICIAN class or higher licensed radio amateurs and assumes a level of technical knowledge and resourcefulness to successfully put together a working ATV station by the purchaser. Prices, methods of sale, and information supplied are also geared for direct mail or telephone sale to the licensed amateur. We have no store or showroom, our address is for mail order only. Non amateurs may purchase all but transmitting equipment from us. All orders for transmitting equipment must be purchased by a licensed amateur for lawful amateur purposes only (see CFR 47 part 97), and may be refused by us if we believe the equipment will be used unlawfully, or the purchaser does not check out in this years Callbook. New licensees may send a copy of their ticket if not listed in the Callbook.

RETURN POLICY: All sales are final once shipped by us. Any returns of unused equipment are subject to a 15% shipping, handling, retesting & restocking charge if the purchaser calls us for authorization within 15 days of our shipping date. Unused in this case means never connected up in anyway, no physical damage, or in our opinion completely resaleable as new.

SERVICE POLICY: In case of difficulty, call for technical advice or return authorization for repair. Over 80% of the time the problem is with the customers unfamiliarity with UHF techniques or lack of test equipment. Call so we can give you some trouble shooting hints. Our policy on our manufactured equipment is the customer ships to us at their cost after return authorization. If we deem that the problem is due to our workmanship and materials within a reasonable time period (different parts have different expected lifetimes — we feel this is fairer and more realistic than the usual 90 days by most equipment manufacturers). It will be fixed and returned at no further cost to you asap. If we believe the problem is due to the customers misuse, abnormal wear, natural causes or physical damage then modules will be repaired for \$15 plus parts cost, and packaged units (TC-1, TC70, TVX) repaired for \$30 plus parts cost. Items will be returned via UPS COD unless otherwise authorized. No other warranty is expressed or implied than that noted here. Any equipment not manufactured by us is limited to the warranty made by the manufacturer, your recourse is with the manufacturer and their repair and warranty policy. No exchanges except those authorized by the manufacturer.

METHODS OF PAYMENT WITH ORDER:

VISA or MASTERCARD, purchasers card only, no third party using someone else's card with permission accepted. \$25 minimum charge card order (keeps bank cost down and your prices). We do not accept American Express or Discovery Cards.

COD. Cash only COD via UPS, cash means currency, no checks. Add \$3 for COD charge. Include a daytime telephone number.

CHECK. U.S. Postal Money Orders are treated same as cash and do not delay shipment. ALL other checks may take up to 3 weeks to clear before shipment. All checks must be in U.S. dollars drawn on a U.S. bank.

METHOD OF SHIPMENT. All our prices noted as "ppd" (postage paid) include insured UPS surface (brown) shipment anywhere in the contiguous 48 states, and require a street address or known UPS location for delivery (no PO box). Add \$2 shipping only if the total order is under \$25. Allow up to 6 working days shipping time across country. Next day UPS air (red) and Second day air (blue) are shipped at cost on a priority basis. Other shippers can be used at customer request at cost plus a special handling fee depending on complexity.

Canada, APOs, and outside contiguous USA states and possessions are shipped via Air Parcel Post for 4% of the total order with a \$5 minimum charge. Foreign shipments are made via Air Parcel post at cost. Call or write for amount. We cannot assure foreign delivery, and suggest foreign customers have us ship to their freight forwarder or agent in the USA. We do not have any other agents or dealers.

PURCHASING AGENTS: We do not accept Purchase Orders, or order forms with any terms, conditions, etc., other than those listed here. We do no billing. Payment must accompany the order. A paid invoice is sent in one of the equipment boxes for your records, we will list your order number if requested for your accounting but in no way should be implied that we accept any terms and conditions connected with your order number. We are not into paperwork and won't pass its cost on to other hams in the price of our products.

TELEPHONE ORDERS: (818) 447-4565. This is your fastest way to get on ATV. We can usually ship within 2 days for most items. Have charge card info ready, model numbers and frequency. Telephone times are 8 a.m.-5:30 p.m. Pacific time Monday thru Friday. Tom, Maryann, or Rick can take your order and answer any questions.

MAIL ORDERS: Fill out the form below. Don't forget to list desired frequency on transmitters. Californians only add sales tax. Only add shipping or handling if under \$25, outside contiguous USA, or foreign. Our prices may change later from those in this catalog. Order will be sent back with check or card info if there is a price change or the total is incorrect. On charge card orders double check the numbers and expiration date you list. Mastercard only include the 4 digit interbank number which is usually below and left of the card number. Name must be exactly as printed on the card, please print. Put in the address you receive your charge card bills at even if it might be different from the ship to address if you are paying by charge card. Ship to or charge card address must agree with callbook address or include copy of amateur license if transmitting equipment is ordered.

ORDER FORM

QTY	MODEL #	DESCRIPTION	FREQ.	PRICE EA	TOTAL

Name _____ Ham Call _____

Ship to Street Add. _____

City _____ State _____ Zip _____

Charge Card Billing Address If different:

Address _____

City _____ State _____ Zip _____

Visa or Mastercard # _____

Expiration Date _____ MC Bank # _____

COD Orders, Daytime Phone () _____

Equipment Total _____

(Calif. only) add sales tax 6/6.5% _____

If total under \$25 add \$2 _____

CAN., AK, HI, PR, APO shipping add 4%, \$5 min. _____

If COD add \$3 _____

Total _____

Charge card \$25 min order.

MAIL TO: P.C. ELECTRONICS, ATTN: MARYANN,
2522 PAXSON LN., ARCADIA CA91006-8537 5/88

Fig.2 illustrates the ideal input connection where the socket is adjacent to the end of L1. It is strongly recommended that either type N or BNC sockets are used, especially at the input. It is advantageous also to mount the output connector in such a way as to eliminate the need for a coaxial cable within the box.

All capacitors, with the exception of the oscillator injection, should be wired so as to keep their leads VERY short.

ALIGNMENT

Up-end the 180 Ohm resistor from the +12v input and apply power. Monitor the oscillator frequency on a TV receiver and, with the aid of a piece of wire soldered to a short length of coax, connect it to the TV aerial socket and place near to the converter. Tune the oscillator to the required frequency as indicated on the screen.

Re-connect the 180 Ohm resistor and connect a milliammeter in series with the +12v supply to Tr1. Adjust P1 for around 3.5mA. Re-connect the resistor and repeat the operation with Tr2, adjusting P2 for about 4.5mA.

Connect the output to a TV receiver tuned to the IF frequency and adjust the output tuned circuit for maximum noise. Apply a 24cm signal, either from a test generator or from a local amateur, and tune it in on the TV set. Carefully peak all trimmers for best output. The first stage should be optimised for minimum noise whilst the second is set for maximum gain. The pairs of trimmers on the tuned lines are, to a certain degree, inter-dependent and the optimum position may be found by trial and error.

This tuneup procedure is often the most difficult since a strong enough signal must be found to pass through the converter before it is properly aligned. It may therefore take a little patience to find the first signal, after which alignment will take a very short time.

NOTES

Because this converter is operating at such high frequencies, component tolerances become more significant if repeatability is to be assured. The problems most likely to be encountered are those associated with using widely differing base materials for the copperclad board. Experience has shown that some materials (particularly boards thinner than about a sixteenth of an inch) cause the resonant frequency of the tuned circuits to become lower, thus the converter will not be able to be tuned to a high enough frequency. The solution is to reduce the lengths of L1,2 and 3 by a sixteenth of an inch (or even more) until the circuits tune over the required band. Different trimmer capacitors, perhaps with a lower minimum capacity should also help.

As with any single-ended mixer, little attenuation of the local oscillator signal is realised, therefore the fundamental and second harmonics appear at the output at fairly high levels. In practice this does not affect the performance of the converter although it is wise to space the oscillator and IF frequencies as far apart as possible.

A series tuned circuit at the oscillator frequency may be connected to the output socket, this should attenuate the oscillator signal by around 40dB. Obviously a balanced mixer would be more suitable but for simplicity it was decided to use the single ended system.

With this type of converter there is always the danger of other signals (particularly in the UHF TV spectrum) getting into the converter and appearing as unwanted signals at the output. A good deal of work has been carried out to ensure that the converter will handle such signals and will not add to them by spurious mixing. Users in very high signal strength areas adjacent to a local TV transmitter could still suffer however. One user, who is line-of-sight to the large Sutton Coldfield transmitter experienced this problem and promptly overcame it by installing a bandpass filter at the converter input, (see CQ-TV120).

The IF output level is fairly high and in general up to about 6dB of attenuation may be used before any noticeable degradation of the picture takes place.

This converter system may be considerably enhanced by adding a good quality low noise pre-amplifier in front. The Microwave Modules MMA1296 is a good choice. The amplifier should ideally be mounted at mast head to eliminate the losses in the coaxial feeder to the converter.

AERIALS

At present there are several aerials on the market for the 1.3GHz band. Unfortunately most operate over a relatively narrow band since they are designed for use between 1296 and 1298MHz. Some aerials do cover a wider range but even their performance falls off considerably towards the lower end of the band. As an example the gain of the popular J-Beam 15 over 15 slot falls to around 10dB at 1260MHz.

A good design which exhibits a fairly wide bandwidth is the Quad-Loop Yagi. Unfortunately these are not available commercially in the UK and therefore have to be home constructed. Designs for this aerial have appeared in (among others) Radio Communication magazine. If it is to be used towards the lower end of the band the normally quoted dimensions (which are for 1296) should be scaled to the required frequency.

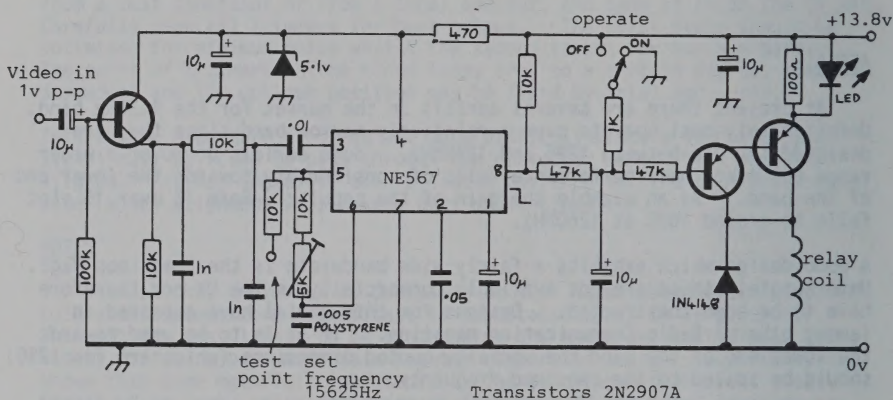
Possibly the best aerial for our use is the Helix or helical-wound type. This has the advantage of being compact whilst providing high forward gain over a wide bandwidth. The aerial is not difficult to construct and further details may be found in CQ-TV117 which is also a 1.3GHz TV special issue.

At the time of writing an aerial manufacturing company - Selectronic Services- have started making the Helix for amateur use. Various sizes and gains are available and they are built to a high specification. All aerials supplied have right-hand circular polarisation, (the BATC standard). There are numerous good reasons for using the Helix not the least of which is its insensitivity to signal fading, a good feature for TV use. Cross polar discrimination between circular and linear aerials is around 3dB.

VIDEO OPERATED RELAY

This video operated relay is designed to key a small 12v relay when horizontal sync is sensed at its input. It can be used in a variety of applications, for example, to remotely activate a video recorder, in an ATV repeater system or as a receiver warning alarm. Should it be necessary to activate a heavy relay, say for transmitter power applications, the small relay may be used to switch in a large one.

The VOR circuit first separates horizontal sync from the video and noise, this then passes to a NE567 tone decoder IC whose frequency is set to 15625Hz (line frequency). The decoder output signal changes state after about a tenth of a second and causes current to flow in the final transistor so energising the relay. A switch is provided to enable the circuit to be de-activated. A drop out delay of around 0.5 second is provided to cater for quick fades or multipath dropouts. The attack and delay times are determined by the 10uF and the 47k resistors associated with pin 8.



The frequency of the decoder should be set by using a frequency counter connected to the test point and carefully adjusting the pot to within 100Hz of 15625Hz. This should be done with no video connected. The normal lock-in range is around plus and minus 800Hz to allow for odd computer horizontal frequencies or badly adjusted cameras.

This circuit appeared in A5 Amateur TV magazine for August 1984 and thanks are due to the author and publisher for permission to reproduce it here. The design is from P.C.Electronics of 2522 Paxson Lane, Arcadia, CA91006, USA who produce a printed board or assembled module.

A NEW HAM TV MAGAZINE

FROM THE HAM THAT BROUGHT YOU ATV DX VIA BALLOON: WB8ELK

AND

FROM THE HAM THAT GOT ATV IN THE AUG. 27 ISSUE OF **TV GUIDE**: KB9FO

Amateur Television Quarterly. A high quality technically oriented ham TV magazine.

PROFESSIONAL STAFF FOR EDITING

In the tradition of the BATC, CQ-TV, Ham TV in the US needs a technically oriented ATV magazine. Amateur Television Quarterly is being started to fill this need. Each issue will cover technical subjects, build-it projects, equipment reviews, theory articles and operating news. Each issue will have virtually no editorial content except for FCC and operating news. Each edition will be edited by a professional staff of technical and journalistic experts. Not every item submitted will get published unless it passes our editorial and technical staff.

VALUABLE CONTENT

The first issue is expected to be out in January of 1989. Each issue should be at least 48 easy to read pages. That's 48 pages of useful information not 12 pages of ads for in house products and promotions. Areas covered will be FSTV, SSTV, video and related subjects. Our internal text paste up is done on daisy wheel and laserjet printers ... no hard to read dot matrix fonts!

YOUR INPUT NEEDED

In order to succeed we encourage your input. This can be in the form of articles, operating news, subscription or comments. Amateur TV Quarterly will PAY for your technical articles. You won't get rich but it will keep you in typewriter ribbons. Our initial distribution of 4,000 copies will make you famous! This may mean even more issues per year if response is large enough! Well known ATVers have already submitted prime material for the debut issue.

YOUR RESPONSE PLEASE!

Please check the boxes below and let us know your thoughts about our project. You can subscribe now and the funds will be kept in escrow until we publish our first issue. Issue dates: January, April, July, October, mailed month prior, deadline second month prior.

☐

Yes, this is an idea who's time has come. I will support the effort as indicated:

- ☐ operating news from my area _____
- ☐ promotion of subscriptions in my area.
- ☐ classified or commercial ad space, please send rates.
- ☐ my subscription for 1 year \$15 (USA) \$20 Canada US Funds
- Introductory special: 2 years \$25 \$30 Canada US Funds
- ☐ Technical article or regular column about _____

☐ No, thanks but I may be interested later.

Other comments:

Reply to: **ATVQ**
1545 Lee St., Suite 73
Des Plaines, IL 60018

One last advantage, a business phone you can call: 312 298-2269

ATVQ SUBSCRIPTION

Yes! I'm looking forward to ATVQ!
I don't want to miss out and my
subscription is enclosed.

☐ 1 YR \$15

☐ 2 YR \$25

Gift?

Givers name _____

Call _____

AMATEUR TELEVISION QUARTERLY

**1545 Lee St., Suite 73
Des Plaines, ILL 60018**

Name _____ Call _____

Address _____

City _____

State _____ Zip _____

optional info

operate: FSTV SSTV FAX other

bands _____

grid locator _____ or Lat: _____ lon: _____

best DX _____

Station equipment: Exciter _____ amp _____

RX _____ preamp? _____ ant _____

Access ATV RPT? _____ call and QTH _____

TWX _____ (kept confidential)

ATVQ SUBSCRIPTION

Yes! I'm looking forward to ATVQ!
I don't want to miss out and my
subscription is enclosed.

☐ 1 YR \$15

☐ 2 YR \$25

Gift?

Givers name _____

Call _____

AMATEUR TELEVISION QUARTERLY

**1545 Lee St., Suite 73
Des Plaines, ILL 60018**

Name _____ Call _____

Address _____

City _____

State _____ Zip _____

optional info

operate: FSTV SSTV FAX other

bands _____

grid locator _____ or Lat: _____ lon: _____

best DX _____

Station equipment: Exciter _____ amp _____

RX _____ preamp? _____ ant _____

Access ATV RPT? _____ call and QTH _____

TWX _____ (kept confidential)

**THIS COPY OF
ATVQ GOES TO:**